

Industry Readiness Index Test - Electronics

**Read instructions on this page carefully.
Do not turn this page until you are asked to do so.**

Assessment Test ID: 2519
Duration: 30 minutes
Number of Questions: 30
Max Marks: 30

Instructions:

1. Do not write anything on this test paper.
2. Separate sheets will be provided for rough work. Please ask if you need more.
3. Fill all the details clearly in the answer sheet.
4. Mark answers in the answer sheet provided by filling the circle of the correct choice corresponding to the question number.
5. To change your answer, erase the earlier mark clearly and mark the new answer. It is better to use a pencil if you want to change your answers.
6. Some questions may have more than one correct answer. In that case, it is indicated as part of the question. You must mark all the correct answers. Partial answers will be considered wrong.
7. Wrong answers will carry negative marks. Therefore, do not guess answers.
8. Do not use any tools like calculators, cell phones during the test. Switch off your cell phone now.
9. After completing the test, you must return all the papers including this test paper, answer sheet and the rough sheets.

We wish you the very best!

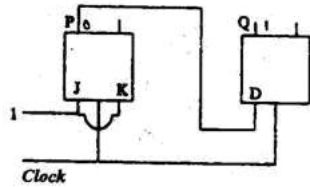
Do not turn this page. Wait until you are asked to do so.

1. Which of the following contributes to harmonics distortion in amplifiers?
 - A) Presence of noise
 - B) Defective active device
 - C) +ve feed back
 - D) Non linearity in active device
2. A push pull amplifier balances out
 - A) Even Harmonics
 - B) Both
 - C) Odd Harmonics
 - D) None
3. Which class of amplifier operates with least distortion?
 - A) Class B
 - B) Class C
 - C) Class A
 - D) Class D
4. CB configuration is less frequently used, because
 - A) It has high input impedance
 - B) It does not heated up
 - C) It has low input impedance
 - D) It has very high gain
5. A class A amplifier is the one in which
 - A) Collector current flows most of the time
 - B) Emitter current flows all the time
 - C) Base is biased to cut off
 - D) None of the above
6. A FET has a gate source bias of -2V. The ac input signal is $\pm 1.2V$. The class of operation is
 - A) B
 - B) C
 - C) A
 - D) AB
7. A reverse bias saturation current for a particular P-N Junction is 1 micro ampere at 300 K. Its dc slope resistance at 150 mili volt FB will be closer to
 - A) 78 ohm
 - B) 1240 ohm
 - C) 36 ohm
 - D) 1000000 ohm

8. What is the even parity bit of the binary number 1111100101001011?

- A) 1
- B) 01
- C) 10
- D) 0

9.



Consider the figure shown. The arrangement of the master-slave flip flops has the initial state of P and Q as 0 and 1, respectively. What will be the state of P and Q after three clock cycles?

- A) 1,1
- B) 0,0
- C) 1,0
- D) 0,1

10. The 2's complement representation of base 10 number -539 in hexadecimal form is:

- A) DBE
- B) DE5
- C) 9E7
- D) ABE

11. In 2's complement addition overflow

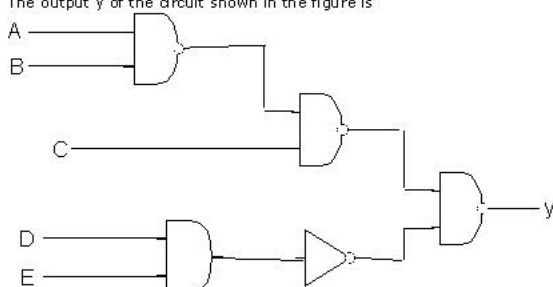
- A) cannot occur when positive values added to the negative value
- B) is flagged whenever there is carry from second last bit to sign bit
- C) is flagged whenever there is carry from sign bit's addition
- D) None of the above

12. What is the minimum number of NAND gates required to implement a 2-input EXCLUSIVE OR function without using any other logic gate?

- A) 4
- B) 5
- C) 3
- D) 6

The output y of the circuit shown in the figure is

13.



- A) $AB + C(D + E)$
- B) $(A + B)C + D + E$
- C) $(AB + C)DE$
- D) $(\overline{A + B})C + DE$

14. MOV AL, E5h

MOV BL, 23h

ADD AL, BL

What is the content of the AL after executing this program?

- A) 88h
- B) 108h
- C) 08h
- D) 118h

15. The size of the queue available in 8086 is _____ bytes

- A) 6
- B) 8
- C) 4
- D) 12

16. Which of the following operations is not possible by the 8086 microprocessor?

- A) Reading from Memory
- B) Reading from Input port
- C) Writing into Memory
- D) Writing into Input port

17. If AL contains 75h and if AL is ANDed with AEh then the contents of the AL register will be _____

- A) 14h
- B) 24h
- C) 15h
- D) 25h

18. Which of the following is an illegal 8086 instruction

- A) INC AL, 1
- B) AND BX, BX
- C) MOV AX, 30000
- D) SUB AX, 30

19. Which of the following is not an assembler directive?

- A) LENGTH
- B) ASSUME
- C) EVEN
- D) RETURN

20. A conditional jump instruction always

- A) involves the use of flag register
- B) modifies instruction pointer register
- C) causes a transfer of control
- D) involves testing the Zero flag

21. When the modulating frequency is doubled, the modulation index is halved, and the modulating voltage remains constant. The modulation system is

- A) phase modulation
- B) frequency modulation
- C) amplitude modulation
- D) all of the above

22. Indicate the FALSE statement from the following. The square of the thermal noise voltage generated by a resistor is proportional to

- A) its temperature
- B) Boltzmann's constant
- C) its resistance
- D) the bandwidth over which it is measured

23. A carrier is simultaneously modulated by two sine waves with modulation indices of 0.3 and 0.4; the total modulation index

- A) is 0.7
- B) is 1
- C) is 0.5
- D) cannot be calculated unless the phase relations are known

24. Indicate the FALSE statement from the following. Modulation is used to

- A) separate differing transmissions
- B) allow use of practicable antennas
- C) reduce the bandwidth used
- D) ensure that intelligence may be transmitted over long distances

25. The modulation index of an AM wave is changed from 0 to 1. The transmitted power is

- A) halved
- B) doubled
- C) unchanged
- D) increased by 50 percent

26. The effect of noise and intersymbol interference on a signal can be determined using
- A) constellation diagram
 - B) ratio of chips to information bits
 - C) eye-diagram
 - D) none of the above
27. The Hartley-Shannon theorem sets a limit on the
- A) maximum capacity of a channel with a given noise level
 - B) maximum number of coding levels in a channel with a given noise level
 - C) highest frequency that may be sent over a given channel
 - D) maximum number of quantizing levels in a channel of a given bandwidth
28. In QAM, the transmitted signal is varied by the baseband signal in
- A) both amplitude and phase
 - B) both frequency and phase
 - C) both amplitude and frequency
 - D) all of the above
29. Indicate which of the following pulse modulation systems is analog.
- A) Differential PCM
 - B) PWM
 - C) PCM
 - D) Delta
30. Quantizing noise occurs in
- A) frequency division multiplexing
 - B) pulse-code modulation
 - C) time-division multiplexing
 - D) pulse-width modulation